

Monday, May 18, 2009
Energy Systems and Impacts: Global Challenges

SESSION CHAIR: TERRY WALLACE

- 8:30-8:40 am **Robert Ecke** - Welcome
- 8:40-9:00 am **Terry Wallace**
Overview of LANL's Energy security science and strategy
- 9:00-10:00 am **Nebojsa Nakisenovic** (Vienna University of Technology)
World in Transition: Towards Decarbonization
- 10:00-10:30am **Break**
- 10:30-11:30am **Rajan Gupta** (Los Alamos National Laboratory)
Global Energy Observatory: a One-stop Site for Information on Energy Systems
- 11:30-1:30pm **Lunch**

SESSION CHAIR: DV RAO

- 1:30-2:30pm **Massoud Amin** (University of Minnesota)
Toward Stronger, more Secure and Smarter Grid
- 2:30-3:30pm **Marija Ilic** (Carnegie Mellon University)
Engineering Electricity Services of the Future
- 3:30-4:00pm **Break**

SESSION CHAIR: PHIL JONES

- 4:00-5:00pm **David Bader** (Lawrence Livermore National Laboratory)
Climate Simulation and Prediction in the Post-AR4 Era
- 5:00-6:00pm **Round Table** – Opportunities for US to lead the transformation to clean energy systems.

Panel: Robert McGrath, Finis Southworth, Brian Clark, David Bader and Nebojsa Nakisenovic

Tuesday, May 19, 2009
Technology: Future of Conventional and Alternatives

SESSION CHAIR: ALAN BISHOP

- 8:30-9:30am **Robert McGrath** (Deputy Director, National Renewable Energy Laboratory)
Transforming Our Energy Economy – the Role of Renewable Energy
- 9:30-10:30am **Thomas Meyer** (University of North Carolina)
Splitting Water Into Hydrogen and Oxygen with Visible Light

10:30-11:00am **Break**

SESSION CHAIR:

- 11:00-12:00pm **Finis Southworth** (AREVA NP, Inc.)
Outlook for the Global Nuclear Fleet
- 12:00-1:00pm **Paul Robinson** (Sandia National Laboratories)
- 1:00-2:30pm **Lunch**

SESSION CHAIR: BILL TUMAS

- 2:30-3:30pm **Richard Sayre** (Donald Danforth Plant Science Center)
Microalgal Biofuels, a systems approach
- 3:30-4:30pm **Brian Clark** (Schlumberger Oilfield Services)
Advanced Drilling Technology for Subsurface Exploration and Enhanced Recovery
- 4:30-6:00pm **Poster Session I** (Bio & Global Systems)

Wednesday, May 20, 2009
**How nature does it: Biofuels and microbial fuel cells;
Environmental challenges**

SESSION CHAIR: JOSE OLIVARES

8:30-9:30am **Robert Blankenship** (Washington University)
Antenna processes in photosynthetic membranes and bio-hybrid model systems

9:30-10:30am **Paul Langan** (Los Alamos National Laboratory)
Cellulosic Biofuels Research at Los Alamos National Laboratory

10:30-11:00am **Break**

SESSION CHAIR: DAVID THORN

11:00-12:00pm **Blake Simmons** (Sandia National Laboratories)
Beyond Ethanol: The Joint BioEnergy Institute

12:00-1:00pm **Trey Sato** (Great Lakes Bioenergy Research Center)
Molecular, Genetic, and Genomic Approaches to Alleviate Bottlenecks in Cellulosic Ethanol Production by Yeast

1:00-2:30pm **Lunch**

SESSION CHAIR: GNANA GNANAKARAN

2:30-3:30pm **Melinda Kimble** (UN Foundation)
From Biofuel Excitement to Biomass Opportunities

3:30-4:00pm **Break**

SESSION CHAIR: CLIFF UNKEFER

4:00-5:00pm **Michael E. Himmel** (National Renewable Energy Laboratory)
Understanding the Natural Paradigms for Biomass Conversion

5:00-6:00pm **Michael R. Ladisch** (Purdue University)
Biofuels: Challenges and their Role in a Sustainable World

7:30pm **Banquet**

Thursday, May 21, 2009

Solar Energy Harvesting: Photovoltaics and Water Splitting

SESSION CHAIR: MARY NEU / SUE SEESTROM

- 8:30-9:30am **G. C. Dismukes** (Princeton University)
Bio-inspired Inorganic Catalysts for Water Splitting
- 9:30-10:30am **Tom Picraux** (Los Alamos National Laboratory)
Si/Ge Nanowires: Synthesis and Integration for Energy Applications
- 10:30-11:00am **Break**

SESSION CHAIR: TONI TAYLOR

- 11:00-12:00pm **Paul Barbara** (University of Texas at Austin)
Sub-nanometer optical single molecule experiments on charge separation and trapping in conjugated polymers
- 12:00-1:00pm **Prashant Kamat** (University of Notre Dame)
Solar Cells by Design: Tuning the Photoresponse with Semiconductor Nanocrystals
- 1:00-2:30pm **Lunch**

SESSION CHAIR: ANDY SHREVE

- 2:30-3:30pm **Victor Klimov** (Los Alamos National Laboratory)
Carrier Multiplication in Semiconductor Nanocrystals and Competing Processes
- 3:30-4:30pm **Art Nozik** (National Renewable Energy Laboratory)
Third Generation Solar Photon Conversion to Electricity and Fuel: Multiple Exciton Generation in Silicon and Group IV-VI Quantum Dots; Quantum Dot Arrays and Solar Cells; Singlet Fission; and Water Splitting
- 4:30-6:00pm **Poster Session II** (Materials)

Friday, May 22, 2009

Path Forward: Resources, Science and Technologies

SESSION CHAIR: STEVE BUELOW

8:30-9:30am **William D. Provine** (DuPont)
Key Challenges for the Development of Advanced Biofuels

9:30-10:30am **Lynn Orr** (Stanford University)
Reducing Environmental Impacts of Fossil Fuels

10:30-11:00am **Break**

SESSION CHAIR: DUNCAN McBRANCH

11:00-11:30pm **Mike Nastasi** (Los Alamos National Laboratory)
Extreme Environment-Tolerant Materials via Atomic Scale Design of Interfaces

11:30-12:00pm **Vaughn Gangwish** (Southwest Biofuels Association)
An Overview of Interest in The Algal Biofuels Industry in New Mexico

12:00-12:15pm **Closing**